Paragraph beginning at line 13 of page 1 has been amended as follows:

The compression rate is higher in the irreversible method than in the reversible one so that ~~it is~~ very often ~~to employ~~ the irreversible method <u>is employed</u> when the data size is big and it is not necessary to recover the original data. The data size after the compression is ~~depend~~ <u>dependent</u> upon the image when employing the irreversible method. The irreversible method has a tendency<u>,</u> in general<u>,</u> ~~having~~ <u>to have</u> <u>a</u> lower compression rate when color variation is large in an image. Fig. 7 shows an example of <u>a</u> compression method by classifying color. A choice of color is among 65,536 different colors upon the computer display when 'Full Color' is chosen. It is, therefore, necessary to deal with 65,536 different ~~color~~ <u>colors</u> to compress at most. On ~~a~~ <u>the</u> contrary<u>,</u> the compression rate becomes higher if the number of ~~color~~ <u>colors</u> is minimized. Therefore, a mono-colored image ends up with ~~in~~ <u>a</u> high compression rate and a colorful image ends up with ~~in~~ <u>a</u> lower compression rate. Thus, the data size after compression is variable.

Paragraph beginning at line 28 of page 1 has been amended as follows:

As a data culling process by a simple calculation taking ~~a~~ in consideration ~~with~~ the nature of human optical behavior, the portion of culled data has the feature that the averaged brightness data of 4 pixel points taken by the computer became the brightness data of the new pixel point after culling data. The color difference value of the new pixel point after culling data is ~~preventatively~~ preventively assigned to be the predefined color difference value based upon the color difference values of the 4 pixel points. [[~~(Laying open of application,~~]] (Laid-Open Application No. JP8-340552 (Page 4 to 5 and Figs. 1-2)).

Paragraph beginning at line 1 of page 2 has been amended as follows:

While transferring a large data without demanding reversibility, there may be two separate demands. The first demand may be the case the image quality is important and the transfer speed is important. For the irreversible compression technique the compression rate can be defined by the characteristic of the image such as, for example, the number of colors in the image even when data ~~reappear-ability~~ reappearability is ~~taking in~~ taken into consideration. There

-3-

is a case that the ~~reappear-ability~~ reappearability of
compressed data is not important [[. In]], in other words,
when the number of ~~color~~ colors to reappear is not ~~in~~
large[[⊤]]. ~~for~~ For example, ~~the~~ most ~~of~~ LCD ~~projector~~
projectors ~~has~~ have 3 LCD units for light modulation to handle
3 colors[[⊤]], Red, Green and Blue[[, and it]]. It is also
common that the digital-analog transformer that defines the
tone of color handles 256 colors. Moreover, it is also common
for a color printer not to reappear 'Full Color' ~~of~~ for an
image. ~~For data~~ Data communication between the two systems
have different image ~~resolution~~ resolutions, for example from
a personal computer having a display capability of the
XGA(eXtended Graphics Array) standard to a LCD projector
having SVGA(Super Video Graphics Array) display capability, it
is profitable to cull pixel points before compression because
the XGA standard has more pixel points than the SVGA standard.

**Paragraph beginning at line 21 of page 2 has been amended as
follows:**

It takes sometime for data transfer while having a
presentation sending data to ~~a~~ an LCD projector through a
radio data transfer system. If the data transfer time is
constant, the presentation is performed with the certain
interval taking into account ~~of~~ the data transfer time and the
time until the display shows up. It is necessary to have an

-4-

automated compression system to approximate the compression rate ~~no~~ <u>without</u> dependence upon the nature of the image.

Paragraph beginning at line 28 of page 2 has been amended as follows:

It is known that the error rate increases while <u>the</u> transferring data rate using wired or radio communication system increases. Once a data error occurs, the portion of broken data has to be corrected by sending the same data set. The error rate, however, remains low if the quantity of data is small.

Paragraph beginning at line 33 of page 2 has been amended as follows:

Data transfer by radio often uses mono frequency and a half duplex protocol so that the data transfer is asynchronous in general. Sending data asynchronously take more time than sending it synchronously because asynchronous does not go high on the data transfer rate than synchronous. ~~More~~ <u>A high</u> data transfer time ~~causes higher in~~ <u>increases the</u> chance for the data to be perturbated by noise and/or interference. The quantity of data for each transmission is preferably short and the equal amount for the point of view to employ the packet communication method.

Heading beginning at line 33 of page 3 has been amended as follows:

BRIEF DESCRIPTION OF ~~THE SEVERAL VIEWS OF~~ THE DRAWINGS

Paragraph beginning at line 17 of page 4 has been amended as follows:

Fig. 1 shows the block diagram of the communication unit of PC side 100 that is attached to the PC. The PC side communication unit 100 is comprised <u>of</u> an interface terminal 110 ~~to make~~ <u>that makes</u> a connection with a computer 10, a transmitter side memory unit 120 that holds many different software and data for transmission, a transmitter side control unit 130 that commands compression of data as an image outputted from the computer 10 and that commands a transceiver unit 150 to send data such as an image, a data <u>compression or</u> compressing unit 140 that compresses the data such as an image, <u>and</u> a transceiver unit 150 that sends the compressed data and an antenna 160 that sends and receives radio frequency.

Paragraph beginning at line 28 of page 4 has been amended as follows:

The transmitter side interface terminal 110 is connected to the data providing side interface terminal 11 by the connector 12. This connection may provide not only ~~the~~ data such as images but also the power to make the PC side communication unit 100 to work. The transmitter side control unit 130 <u>sends</u> commands to compress the data such as an image inputted from the transmitter side interface terminal 110 and commands to transmit toward the LCD projector side communication unit 200. When the LCD projector side communication unit 200 cannot receive the data or the data itself is broken, the data is repeatedly sent toward the LCD projector side communication unit 200. A microcomputer can be used. The ~~data-compressing~~ <u>data compressing</u> unit 140 handles data compression of images. The compression rate can be selected ~~with the~~ <u>in</u> relation to the transfer time of the information. An integrated compression circuit can be used. The transmitter side memory unit 120 holds the data compressed at the data-compressing unit 140. One frame of the image is stored in the memory. The transceiver unit 150 sends the data toward the LCD projector side communication unit 200[[~~. And~~]] <u>and</u> it receives a confirmation signal <u>of</u> whether the LCD projector side communication unit 200 received the data correctly or not. Both transmitting frequency and receiving

-7-

frequency are the same frequency. The antenna 160 can be either unidirectional or ~~multi-directional~~ <u>multi-directional</u>.

Paragraph beginning at line 16 of page 5 has been amended as follows:

Fig. 2 shows the structure of the LCD projector side communication unit 200. The LCD projector unit 200 has an antenna to capture the data from the PC side communication unit 100, ~~the~~ <u>a</u> transceiver unit 220 to receive the data and to send a confirmation signal whether reception was good or not, ~~the~~ <u>a</u> receiver side control unit 240, ~~the~~ <u>a</u> receiver side memory unit 230, ~~the~~ <u>a</u> decompression <u>or decompressing</u> unit 250 to recover the data from the decompressed form, ~~the~~ <u>a</u> video RAM 260 to store the information needed to draw an image, ~~the~~ <u>and a</u> video signal transforming device 270 and ~~the~~ <u>a</u> receiver side interface 280. The LCD projector 20 has ~~the~~ <u>a</u> data providing side interface terminal 21. The LCD projector side communication unit 200 and the LCD projector 20 are connected directly <u>to</u> the receiver side interface terminal 280 and the data output side interface terminal 21 by ~~the~~ <u>a</u> connector 20 or by using a cable.

Paragraph beginning at line 30 of page 5 has been amended as follows:

The antenna 210 can be either mon-directional or multi-directional. The transceiver unit 220 receives the data sent by the PC side communication unit 100, and sends the confirmation signal whether reception was good or not to the PC side communication unit 100. The receiver side memory unit 230 stores the data decompressed at the data-decompressing unit 250. The volume of the memory is undefined. It may be arbitrary, for example, <u>a</u> memory size of one full frame of an image or a half frame of an image. The ~~data-decompressing~~ <u>data decompression</u> unit 250 decompresses the compressed data to recover the original data from the compressed form. The receiver side interface terminal 280 may accept the power of operation from the LCD projector 20.

Paragraph beginning at line 4 of page 6 has been amended as follows:

Next, ~~the explanation is focused to~~ the image compression method <u>is described</u>. If the color grade is 'Full Color', 16 bits of color attribute is needed for each pixel of the image. But if it is just 8 different colors, then 3 bits of color attribute is necessary for a pixel. The number of pixels for XGA (extended Graphic Array) standard is 1024

pixels on a row and 768 pixels in column, and 786,432 pixels in total. The 'Full Color' grade has 16 bits of color attribute so that one full frame of image of full color XGA image is comprised of 12,582,912 bits of data without any compression. On a the contrary, the number of pixels of the LCD projector for SVGA (Super Video Graphic Array) standard has 800 pixels on a row and 600 pixels on a column and 480,000 pixels in total. When each pixel has a choice from 8 different colors, in other words, 3 bits of color attribute, total number of bits is 1,440,000 bits, which is 11.44% of data quantity comparing to that of the PC.

Paragraph beginning at line 19 of page 6 has been amended as follows:

Fig. 3 is a diagram showing the process of conversion from full color image data to RGB (3 fundamental colors) form by using a bit maps. While converting color attribute from full color to RGB form, the upper bits of color attribute are responsible for the gross selection of color and the lower bits of color attribute are responsible for the fine difference in color. When the PC 10 sends a signal indicating that the color attribute is 16 bit long to the transmitter side control unit 130 of the PC side communication unit 100, The the transmitter side control unit 130 put places a 0 (zero) to the lower 13 bits but not the upper 3 bits of 16

-10-

bits color attribute of the 1st pixel to the 3rd pixel 301 through 304, and ~~make~~ makes the color attribute 311 and 314. Then, ~~extracting out~~ 3 upper bits of color attribute are extracted from each pixel 311 and 314 to form the upper bits data set 321 to 324. The upper bits data set 321 to 324 is shifted leftward 330 and is compressed 340. Instead of the transmitter side control unit 130 of the PC side communication unit 100, the PC 10 itself may ~~be possible to~~ possibly perform the compression. No compression process takes place at the transmitter side control unit 130 for this case.

Paragraph beginning at line 37 of page 6 has been amended as follows:

The ~~explanation here is focused to the~~ culling process of an image data is now described. Fig. 4 shows culling 1 pixel out of every 4 pixels to the horizontal direction. Comparing the XGA standard and the SVGA standard, the number of pixels to the horizontal direction is 1,024 for XGA and 800 for SVGA and the ratio is 1 to 0.78, approximately 4 to 3. Therefore, culling 1 pixel for every 4 pixels of XGA standard makes 768 pixels horizontally, that is a little less than 800 pixels of SVGA standard.

Paragraph beginning at line 6 of page 7 has been amended as follows:

This embodiment signifies to minimize the data quantity before compression, taking a~~~~ into consideration ~~to~~ the data quantity required for the image resolution of the destination that the data is sent, by treating the data at the transmitter side before transmission.

Paragraph beginning at line 11 of page 7 has been amended as follows:

The ~~explanation here is consisted the~~ method to minimize data transfer time by degrading color resolution is now described. Fig. 5 is a flow chart indicating the method. It takes place when sending an image data without compression between a PC with a display of XGA standard and a LCD projector of XGA standard.

Paragraph beginning at line 16 of page 7 has been amended as follows:

The display of the computer 10 shows all the image of the file including the images of a presentation[[÷]] (Procedure 201). An operator takes a choice of one of the images[[÷]] (Procedure 202). The computer displays the image by 6 different color attribute levels[[÷]] (Procedure 203).

-12-

The operator chooses one of the 6 color attribute levels[[÷]] (Procedure 204). The computer 10 memorizes the selected color attribute level as the number of upper bit length of color attribute[[÷]] (Procedure 205). Hypothetically the 6 bits of color attribute is selected here. The operator presses a key on the computer 10 either 'Display' or [[~~Send.~~]] 'Send' (Procedure 206). When the key is pressed, the computer 10 converts the color attribute of each pixel of the image into the number of color attribute bits, which are upper 6 bits[[÷]] (Procedure 207). The data-compressing unit 140 of the PC side communication unit 100 compresses the image data[[÷]] (Procedure 208). The compressed data is sent[[÷]] (Procedure 209). The LCD projector side communication unit 200 ~~decomposes~~ <u>decompresses</u> the image data sent[[÷]] (Procedure 210). The decompressed image data is sent to the LCD projector 20 and the LCD projector 20 displays the image[[÷]] (Procedure 211). If the color resolution is judged to be not good enough, the length in bits of color attribute can be increased from 6 to, for example, 8[[÷]] (Procedure 212). ~~And then the same~~ <u>Thereafter, the process</u> flow ~~from~~ <u>continues from</u> the procedure 206 ~~takes place. They are~~ as follows: The operator presses a key on the computer 10 either 'Display' or <u>'Send'</u> [[~~Send.~~]] (Procedure 206). When the key is pressed, the computer 10 converts the color attribute of each pixel of the image into the number of color attribute

-13-

bits, which are upper 6 bits[[.]] (Procedure 207). The [[data-compressing]] data compressing unit 140 of the PC side communication unit 100 compresses the image data[[.]] (Procedure 208). The compressed data is sent[[.]] (Procedure 209). The LCD projector side communication unit 200 decomposes decompresses the image data sent[[.]] (Procedure 210). The decompressed image data is sent to the LCD projector 20 and the LCD projector 20 displays the image[[.]] (Procedure 211). If the quality of displaying the displayed image is good enough, the current level of resolution is kept. If there are more images to display, it provides the next image[[.]] (Procedure 213). It continues the The procedures from Procedure 206 through Procedure 230 continue until no more images to be displayed are encountered[[.]] (Procedure 230).

Paragraph beginning at line 13 of page 8 has been amended as follows:

The radio transfer unit is supposed to have its data transfer rate of 1-mega bits per second. It takes almost 6.3 seconds for only the data transfer time taking a into consideration of the data volume 6,291,456 bits of a full frame of XGA standard 786,432 pixels with 8 bit color attribute for each pixel. The same condition as above except with 3 bits color attribute makes has a data volume of

-14-

2,359,296 bits and the data transfer time becomes about 2.3

seconds. In general a computer handles data transmission so

that execution time of the computer has to be added to the

actual transfer time. But the actual data transfer time

reaches nearly 3 times better. Sacrificing the image

resolution makes possible to shorten the data transfer time.

This embodiment ~~is comprised~~ <u>entails</u> making a software to

decrease the number in bits of color attribute from 8 to 3 and

the method for the presenter to take one from 6 choices.

Paragraph beginning at line 27 of page 8 has been amended as
follows:

        The radio communication in general is ~~a~~ synchronized

and a unique frequency is often in use so that it is very

common for radio data transfer to takes more time than the

wired method. When a presentation is performed by a LCD

projector with a radio communication unit, it is not always

necessary to have the highest possible resolution. There may

be an image that may be better to use the highest resolution,

an image that is permitted even in the very low resolution, or

an image to be redisplayed with higher resolution than the

first time[[~~. As~~]]<u>,as</u> sacrificing resolution ~~makes to~~

~~minimize~~ <u>minimizes</u> data transfer time. When the presentation

time is tight, shorter data transfer time ~~give more room to~~

~~use~~ <u>allows for</u> time <u>to be used</u> efficiently. It is important

-15-

to choose the transfer time to perform the fluent presentation and image resolution by looking at the relation between the transfer time and resolution.

Paragraph beginning at line 15 of page 9 has been amended as follows:

A table indicating the relation between the lengths of time required <u>for</u> displaying an image on a LCD projector 20 and the data volume is provided[[÷]] (Procedure 301)<u>.</u> The operator of the LCD projector 20 ~~select~~ <u>selects</u> the displaying required time[[÷]] (Procedure 302)<u>.</u> The image with resolution of the selected displaying required time shows up on the computer display[[÷]] (Procedure 303)<u>.</u> The operator presses either <u>the</u> 'Display' key or 'Send' key[[÷]] (Procedure 304)<u>.</u> When the key is pressed, the computer 10 compresses the image data[[÷]] (Procedure 305)<u>.</u> The data volume after compression is compared with the data volume ~~corresponded~~ <u>corresponding to</u> the selected displaying required time[[÷]] (Procedure 306)<u>.</u> The data volume after compression is bigger than the selected data and <u>if</u> the compression rate is not enough (Procedure 320), the compression rate is increased[[÷]] (Procedure 307)<u>.</u> In order to increase the compression rate the bit of color attribute is eliminated one by one from <u>a</u> lower side. The elimination is applied color attribute of all the pixels of the image and it returns to the compression of the Procedure

-16-

304.   ~~In~~ On the other hand, for the case that the compression rate is enough (Procedure 320), the compressed image data is transmitted[[,]] (Procedure 308). The image data sent is decompressed[[,]] (Procedure 309). The decompressed image data is sent to the LCD projector 20 and is displayed[[,]] (Procedure 310). For the case in which a next image is available the next image is provided[[,]] (Procedure 311). The compression rate is put back to the original value[[,]] (Procedure 312). ~~And when there~~ When it is considered ~~to have~~ that there are no more image to display (Procedure 330), the procedure comes to ~~the~~ an end.

Paragraph beginning at line 1 of page 10 has been amended as follows:

A data compression method is largely dependent on the number of colors and screen size of the data before compression so that the compression rate is sometimes altered largely and the data volume after compression is different from one image to another. ~~For~~ In the case ~~to perform~~ of performing a presentation using the LCD projector 20 having the radio communication unit connected, it is very common ~~to takes~~ for several seconds of transfer time to be required. If the length of time until displaying of an image is different for every image, this may present a difficulty to the presenter due to ~~may have difficulty in taking~~ an interval of

-17-

the between explanation to of each slide. Principally, the

presentation is required to be fluent and it is better for the

presenter to devise the way to take an interval if the length

of time from start of data transfer to displaying is constant.

Paragraph beginning at line 14 of page 10 has been amended as follows:

In this embodiment the color attribute is 16 bits

because of using the XGA standard and full color grade. The

color attribute of each pixel, therefore, becomes 15 upper

bits by suppressing the lowest bit of color attribute. As In

this example, the compression rate increases by suppressing

the bit of color attribute in the order from lower side and

the length of time until displaying makes becomes constant by

making the data volume after compressing smaller than the data

volume corresponded corresponding to the selected displaying

required time and putting the data volume of each image in

constant. The statement above makes an effect to unify the

length of data transfer time as a constant.